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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/560,047	12/08/2005	Kyoichi Watanabe	040302-0533	8180

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FOLEY AND LARDNER LLP
SUITE 500
3000 K STREET NW
WASHINGTON, DC 20007

EXAMINER

ECHELMMEYER, ALIX ELIZABETH

ART UNIT	PAPER NUMBER
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1795

MAIL DATE	DELIVERY MODE
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09/23/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/560,047	Applicant(s) WATANABE ET AL.	
	Examiner Alix Elizabeth Echelmeyer	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 August 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16-38 is/are pending in the application.
- 4a) Of the above claim(s) 16-29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 30-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This Office Action is in response to the amendment filed August 30, 2010. Claims 1-15 are cancelled. Claims 16-29 were previously withdrawn. Claims 30 and 31 are amended. Claims 32-38 are added. Claims 30-38 are rejected finally for the reasons given below.

Claim Interpretation

2. Claims 31 and 32 include product by process limitations drawn to the method of forming the electrode. The product-by-process limitations are not given patentable weight since the courts have held that patentability is based on a product itself, even if the prior art product is made by a different process (see In re Thorpe, 227 USPQ 964, (CAFC 1985), In re Brown, 173 USPQ 685 (CCPA 1972), and In re Marosi, 218 USPQ 289, 292-293 (CAFC 1983)). MPEP 2113.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 30, 32, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schubert et al. (US 2003/0165744) in view of Delnick (US 5,865,860)

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Schubert et al. teach an electrode comprising a collector (7) with printed electrode (5) ([0062]).

Schubert et al. fail to teach that the electrode layer comprises a plurality of connected dots.

Delnick teaches a process for printing an electrolyte using dots of electrolyte material (Figure 6). The process of Delnick accurately meters and distributes the material (abstract).

As for claim 33, Delnick teaches that the volume of the dots is result effective (abstract). It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. MPEP 2144.04 VI A

The skilled artisan could have applied the known technique of Delnick to print the electrode of Schubert et al. and the results would have been predictable. MPEP 2141 III

5. Claims 34 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schubert et al. in view of Delnick as applied to claim 30 above, and further in view of Sotomura et al. (US 5,518,841).

The teachings of Schubert et al. and Delnick as discussed above are incorporated herein.

Schubert et al. in view of Delnick teach a printed electrode material but fail to teach the claimed active materials.

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Sotomura et al. teach a lithium battery where the electrode is made by mixing an active material with a slurry including the electrolyte material, and then printed onto an electrode substrate (column 12 lines 5-10).

Further, Sotomura et al. teach lithium manganese oxide and carbon as active materials (column 5 lines 14-22; column 11 lines 28-30).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use different active materials, such as those taught by Sotomura et al., in the battery of Schubert et al. in view of Delnick in order to produce a battery having the desired battery chemistry and the results of the substitution would have been predictable. MPEP 2141 III

6. Claims 31 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schubert et al. in view of Delnick and Urso et al. (US 2004/0115522).

The teachings of Schubert et al. and Delnick as discussed above are incorporated herein.

Schubert et al. teach an electrode comprising a collector (7) with printed electrode (5) ([0062]).

Schubert et al. fail to teach that the electrode layer comprises a plurality of connected dots.

Delnick teaches a process for printing an electrolyte using dots of electrolyte material (Figure 6). The process of Delnick accurately meters and distributes the material (abstract).

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As for claim 36, Delnick teaches that the volume of the dots is result effective (abstract). It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. MPEP 2144.04 VI A

The skilled artisan could have applied the known technique of Delnick to print the electrode of Schubert et al. and the results would have been predictable. MPEP 2141 III

Schubert et al. in view of Delnick fail to teach that the maximum thickness of the collector and electrode layer is not more than 105% of a minimum thickness of the collector and electrode layer.

Urso et al. teach a battery electrode that has active material in a uniform thickness on the current collector ([0002]). The uniform thickness is desired since it leads to improved electrical performance.

One having ordinary skill in the art at the time the invention was made could have applied the teachings of Urso et al. to a uniform thickness to the electrode of Schubert et al. in view of Delnick and the results would have been predictable. MPEP 2141 III

It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the thickness of the electrode of Schubert et al. in view of Delnick as uniform as possible, since that would lead to improved electrical performance such as taught by Urso et al. It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. MPEP 2144.05

IIB

7. Claims 37 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schubert et al. in view of Delnick and Urso et al. as applied to claim 31 above, and further in view of Sotomura et al. (US 5,518,841).

The teachings of Schubert et al., Delnick and Urso et al. as discussed above are incorporated herein.

Schubert et al. in view of Delnick and Urso et al. teach a printed electrode material but fail to teach the claimed active materials.

Sotomura et al. teach a lithium battery where the electrode is made by mixing an active material with a slurry including the electrolyte material, and then printed onto an electrode substrate (column 12 lines 5-10).

Further, Sotomura et al. teach lithium manganese oxide and carbon as active materials (column 5 lines 14-22; column 11 lines 28-30).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use different active materials, such as those taught by Sotomura et al., in the battery of Schubert et al. in view of Delnick and Urso et al. in order to produce a battery having the desired battery chemistry and the results of the substitution would have been predictable. MPEP 2141 III

Response to Arguments

8. Applicant's arguments filed August 30, 2010 concerning claims 30 and 31 have been fully considered but they are not persuasive.

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Applicant argues, essentially, that it would not have been obvious to use the technique of Delnick to print the electrode of Schubert et al. because Delnick teaches printing electrolytes, not electrode. The examiner disagrees.

Schubert et al. clearly teach that the electrodes are printed ([0062]). Schubert et al. do not teach the exact method of printing, but the skilled artisan would be well within the ordinary level of skill in the art to look to methods of printing used in the battery art to determine a method of printing the electrode.

Furthermore, the examiner notes that it was known in the art to print electrodes using electrode active material mixed with electrolyte, such as is discussed above in reference to Sotomura et al.

As for Applicant's allegations of unexpected results, on page 8, the examiner is not convinced. Applicant has provided no data to support these allegations.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alix Elizabeth Echelmeyer whose telephone number is (571)272-1101. The examiner can normally be reached on Mon-Fri 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Patrick Joseph Ryan/
Supervisory Patent Examiner, Art Unit 1795

Alix Elizabeth Echelmeyer
Examiner
Art Unit 1795

aee